

*Pholas crispata*, L. *Op. cit.* iii. p. 112, v. pl. 53. f. 1.

Abundant in the soft shale and sandstone at East and West Rocks, and especially opposite the castle. Sometimes the siphons are observed protruding through sand which coats some of the ledges. Young specimens are often cast ashore on the West Sands in water-logged and decayed wood, whence they are extracted by the sea-fowl.

### Genus 3. XYLOPHAGA, Turton.

*Xylophaga dorsalis*, Turton. *Op. cit.* iii. p. 120, v. pl. 53. f. 4.

Not common; several living specimens occurred in the wood of a submerged thorn tree.

## Order SOLENOCONCHIA.

### Fam. Dentalidæ, H. & A. Adams.

#### Genus DENTALIUM, L.

*Dentalium entalis*, L. *Op. cit.* iii. p. 191, v. pl. 55. f. 1.

Occurs on the West Sands in a living state after some storms. The specimens procured from the fishing-boats are generally tenanted by *Sipunculi*. Common.

[To be continued.]

XLIX.—*A Revision of the Genera Epicharis, Centris, Eulema, and Euglossa, belonging to the Family Apidæ, Section Scopulipedes.* By FREDERICK SMITH, Assistant in the Zoological Department of the British Museum.

[Continued from p. 322.]

#### Genus CENTRIS.

*Centris* (pt.), Fab. Syst. Piez. p. 354 (1804).

*Trachina*, Klug, Illig. Mag. vi. p. 226 (1807).

*Hemisia*, Klug, *ibid.* p. 227 (1807).

*Ptilopus*, Klug, Berlin Mag. p. 32 (1810).

#### Generic characters.

Head not so wide as the thorax; eyes large, lateral, elongate-ovate; ocelli placed in a curve on the vertex; antennæ geni-

culate, the flagellum filiform, the first joint gradually narrowed to its base; the labial palpi four-jointed, the two basal joints elongate and flattened, the first longer than the second, the third and fourth minute and attached to the second joint near its apex; the maxillary palpi four-jointed, the first and fourth joints shorter than the intermediate ones; the mandibles stout, and with four blunt teeth in the females. *Thorax*: the anterior and intermediate tibiæ with a single spine at their apex; the posterior pair with two spines, the inner one pectinated: the anterior wings with one marginal and three submarginal cells; the marginal cell oblong, nearly as long as the three submarginals united, widest in the middle, truncate at the base, and more or less rounded at the apex, from which an appendicular nervure is emitted, which sometimes runs nearly to the anterior margin of the wing; the first submarginal cell is divided by a more or less distinct transverse, perpendicular, false nervure; the second cell is wider than the first, and narrowed towards the discoidal cells, receiving the first recurrent nervure towards the first submarginal; the third submarginal much narrowed towards the marginal cell.

*Note.* The mandibles tridentate in the males of many species.

#### 1. *Centris furcata*.

*Centris furcata*, St.-Farg. Hym. ii. p. 151, ♀.

*Bombus furcatus*, Fab. Syst. Piez. p. 350.

*Hab.* Brazil; Demerara.

The male only differs in having the scape of the antennæ in front, the clypeus, the face on each side of it, and the labrum yellowish white.

#### 2. *Centris denudans*.

*Centris denudans*, St.-Farg. Hym. ii. p. 150, pl. xx, fig. 1, ♀.

*Trachina denudans*, Latr., Schomb. Faun. et Flor. Brit. Guiana, p. 591.

*Hab.* Brazil (Tapajos, Ega); Ecuador.

The male differs from the female in having the clypeus and labrum yellow, and in having the anterior tibiæ and tarsi clothed with ferruginous pubescence.

#### 3. *Centris thoracica*.

*Centris thoracica*, St.-Farg. Hym. ii. p. 158, ♀.

*Hab.* Brazil; Rio Grande.

#### 4. *Centris pulverata*.

*Centris pulverata*, St.-Farg. Hym. ii. p. 161, ♀.

*Hab.* St. Paulo (Brazil).

I have seen the type specimen of this species. It is 1 inch

long. It is black, with the pubescence on the head black, that on the thorax a mixture of very short black and griseous, with a tuft of pale fulvous pubescence on each side of the metathorax; the first segment of the abdomen naked, the second and following segments covered with very fine, short, griseo-fulvous pubescence; the second segment more or less naked at the base and in the middle; the posterior legs densely clothed with ferruginous pubescence; wings dark fuscous, with a violet iridescence.

#### 5. *Centris derasa*.

*Centris derasa*, St.-Farg. Hym. ii. p. 150, pl. xx. fig. 2, ♀.

*Hab.* Cayenne.

#### 6. *Centris emarginata*.

*Centris emarginata*, St.-Farg. Hym. ii. p. 157, ♀ (*C. derasa*, var. ?).

*Hab.* Cayenne.

#### 7. *Centris americanorum*.

*Psilolopus americanorum*, Klug, Berl. Mag. p. 32, tab. i. fig. 1, ♀ (1810).

*Centris Langsdorffii*, Blanch. Hist. Nat. des Ins. iii. p. 405, tab. vii. fig. 7, ♀ (1840).

*Hab.* Brazil (Tapajos and Para).

#### 8. *Centris decorata*.

*Centris decorata*, Smith, Cat. Hym. Ins. *Apidæ*, ii. p. 372, ♂.

*Hab.* Pernambuco.

This species closely resembles *C. americanorum*, of which it may possibly be a local variety,—the differences being that the thorax in *C. decorata* is clothed with bright yellow pubescence, the sides of the basal segment of the abdomen have a pale yellow, and the second, third, and fourth segments are covered with olive-green pubescence; in *C. americanorum* the thorax is clothed with fulvous, and only the second and third segments have a covering of olive pubescence. Both examples described are in fine condition.

#### 9. *Centris insignis*.

*Centris insignis*, Smith, Cat. Hym. Ins. *Apidæ*, ii. p. 375, ♀.

*Hab.* Columbia.

#### 10. *Centris festiva*.

*Centris festiva*, Smith, Cat. Hym. Ins. *Apidæ*, ii. p. 375, ♀.

*Hab.* Columbia.

\*11. *Centris discolor*.

*Female*. Length 11 lines. Black; the thorax clothed with fulvous pubescence above, beneath and on the legs it is black; the wings dark fuscous, with a violet iridescence; the abdomen has the sides of the second segment, and the third, fourth, and fifth segments with a grey sericeous pile.

*Hab.* Catagallo (Brazil).

12. *Centris rubella*.

*Centris rubella*, Smith, Cat. Hym. Ins. *Apidæ*, ii. p. 372, ♀.

*Hab.* Brazil (Tapajos); Archidona; Napo.

Specimens from the latter localities have the clypeus yellow anteriorly, as well as the labrum.

13. *Centris obsoleta*.

*Centris obsoleta*, St.-Farg. Hym. ii. p. 153, ♀.

*Hab.* Cayenne; Tapajos.

14. *Centris violacea*.

*Centris violacea*, St.-Farg. Hym. ii. p. 151, ♀.

*Hab.* Brazil.

15. *Centris nobilis*.

*Centris nobilis*, Westw. Nat. Libr. xxxviii. p. 263, tab. xx. fig. 1.

*C. analis*, St.-Farg. Hym. ii. p. 152.

*Hab.* Peru (Tabatinga); Brazil (St. Paulo).

16. *Centris ephippium*.

*Centris ephippium*, Smith, Cat. Hym. Ins. *Apidæ*, ii. p. 378, ♂.

*Hab.* Venezuela.

17. *Centris modesta*.

*Centris modesta*, Smith, Cat. Hym. Ins. *Apidæ*, ii. p. 371, ♂.

*Hab.* Santarem (Brazil).

\*18. *Centris melanchlæna*.

*Male*. Length 10 lines. Black, clothed with black pubescence; the apical margin of the third segment of the abdomen laterally with a narrow fascia of cinereous pubescence, a broader fascia on the margin of the fourth segment inclining to ferruginous, and the two apical segments covered with ferruginous pubescence; the clypeus and labrum yellowish white, the former has two minute black dots at its base; the

labrum covered with black pubescence; wings dark brown, palest at the apical margins, and with a violet iridescence.

*Hab.* Mexico; Vera Cruz.

\*19. *Centris agilis*.

*Male.* Length  $9\frac{1}{2}$  lines. Black, with the abdomen ferruginous. The thorax densely clothed with short sooty-black pubescence; that on the anterior and intermediate legs is of the same colour, as well as that on the posterior femora; on the tibiæ and tarsi of the posterior legs it is fulvous, the joints themselves being rufo-piceous; the claws of the tarsi black; the wings fuscous, darkest at their base; the labrum and clypeus yellow, and a yellow spot on the mandibles near their apex; the first segment of the abdomen black, sometimes the base of the second also.

*Hab.* Vera Cruz.

20. *Centris rufa*.

*Centris rufa*, St.-Farg. Hym. ii. p. 153, ♀.

*Hab.* Santarem (Brazil).

21. *Centris ferruginea*.

*Centris ferruginea*, St.-Farg. Hym. ii. p. 156, ♀.

*Hab.* Para; Tapajos (Brazil).

22. *Centris plumipes*.

*Centris plumipes*, Smith, Cat. Hym. Ins. *Apidae*, ii. p. 373, ♀ ♂.

*Hab.* Tapajos (Brazil).

23. *Centris flavifrons*.

*Centris flavifrons*, St.-Farg. Hym. ii. p. 152, ♀.

*Anthophora flavifrons*, Fab. Syst. Piez. p. 375, ♂. In coll. Banks in Brit. Mus.

*Hab.* Ega, Santarem, &c. (Brazil).

24. *Centris (Xylocopa) mærens*.

*Centris (Xylocopa) mærens*, Perty, Del. Anim. Artic. Bras. p. 150, pl. 28. fig. 11.

*Hab.* Minas Geraes.

This species is black, and has the two basal segments sulphur-yellow; the wings dark fuscous. It is 14 lines long.

25. *Centris (Xylocopa) xanthocnemis*.

*Centris (Xylocopa) xanthocnemis*, Perty, Del. Anim. Artic. Bras. p. 150, pl. 28. fig. 12.

This insect is black; the pubescence on the thorax is yellow anteriorly and black posteriorly; the abdomen densely covered with olivaceous pubescence; wings of an iridescent blue; the posterior tibiæ and tarsi densely clothed with ferruginous pubescence. Length  $11\frac{1}{2}$  lines.

*Hab.* The province of Piauí.

\*26. *Centris personata*.

*Male.* Length 10 lines. Head and thorax black; abdomen ferruginous. The cheeks have a fine short white pubescence at the margins of the eyes, and a longer pale fulvous pubescence beyond. The pubescence on the thorax is sooty black above; beneath it is more or less tinged with fulvous; the prothorax has a little white pubescence on each side anteriorly, close to the head; the tarsi rufo-piceous, with the claws black; wings fusco-hyaline, the nervures fusco-ferruginous; the posterior legs with black pubescence. The abdomen with fulvous pubescence; at the apex, and also beneath, it is dense and bright. The clypeus and labrum reddish yellow; the front of the scape of the antennæ and the mandibles yellow, the latter have a black space a little before their apex; the clypeus has a large black spot at its base divided in the centre by a narrow yellow line; the labrum covered with short fulvous pubescence.

*Hab.* Tapajos, Ega (Brazil).

\*27. *Centris ignita*.

Black, with the apex of the abdomen ferruginous. The head and thorax with black pubescence, that on the posterior tibiæ and first joint of the tarsi fulvous outside and ferruginous within, the joints are also ferruginous; the mandibles with a yellow spot near their apex; the wings dark fuscous, with a purple iridescence. Abdomen shining: the basal segment naked; the other segments have a thin sericeous hoary pile, which is observable in certain lights; the apical margin of the third segment ferruginous, the fascia is widest in the middle and at the sides of the abdomen; the fourth and following segments entirely ferruginous; beneath ferruginous, with more or less of fuscous spots or bands at the basal margins of the segments.

*Hab.* Orizaba (Mexico).

\*28. *Centris semicærulea*.

*Male*. Length  $8\frac{1}{2}$  lines. Head and thorax black, abdomen blue. The pubescence on the face and vertex black, that on the cheeks and thorax above cinereous; the anterior and intermediate legs have a black pubescence, that on the posterior tibiae and basal joint of the tarsi fulvous. The basal segment of the abdomen, and the apical margins of the following segments, with a fascia of pale fulvous pubescence; the wings fusco-hyaline; the clypeus and labrum yellow, the former with a minute black triangular spot at its anterior margin; a pale testaceous spot near the apex of the mandibles.

*Hab.* Venezuela.

29. *Centris flavopicta*.

*Centris flavopicta*, Smith, Cat. Hym. Ins. *Apidae*, ii. p. 373, ♂.

*Hab.* Ega (Brazil).

30. *Centris mexicana*.

*Centris mexicana*, Smith, Cat. Hym. Ins. *Apidae*, ii. p. 378, ♀.

*Hab.* Mexico.

31. *Centris dentata*.

*Centris dentata*, Smith, Cat. Hym. Ins. *Apidae*, ii. p. 374, ♂.

*Hab.* Tapajos (Brazil).

32. *Centris maculifrons*.

*Centris maculifrons*, Smith, Cat. Hym. Ins. *Apidae*, ii. p. 372, ♀.

*Hab.* Brazil; Mexico.

33. *Centris bombiformis* (*Hemesia*).

*Centris bombiformis* (*Hemesia*), Spin. Ann. Soc. Ent. France, x. p. 148, ♀.

*Hab.* Cayenne.

34. *Centris nitens*.

*Centris nitens*, St.-Farg. Hym. ii. p. 163, ♀.

*Hab.* Brazil.

35. *Centris lineolata*.

*Centris lineolata*, St.-Farg. Hym. ii. p. 158, ♀.

*Hab.* Ega, Tapajos (Brazil); Cayenne.

36. *Centris fasciata*.

*Centris fasciata*, Smith, Cat. Hym. Ins. *Apidae*, p. 377, ♀ ♂.

*Hab.* Jamaica.



37. *Centris difformis*.

*Centris difformis*, Smith, Cat. Hym. Ins. *Apidae*, ii. p. 374, ♀.

*Hab.* Tapajos (Brazil); Mexico.

38. *Centris longimana*.

*Centris longimana*, St.-Farg. Hym. ii. p. 164, ♀; Fabr. Syst. Piez. p. 356?

*Hab.* Cayenne; Ega; Tapajos; Para (Brazil).

39. *Centris picea*.

*Centris picea*, St.-Farg. Hym. ii. p. 166, ♀.

*Hab.* ———?

40. *Centris versicolor*.

*Centris versicolor*, Fabr. Syst. Piez. p. 359; St.-Farg. Hym. ii. p. 154, ♀.  
*Apis versicolor*, Fabr. Ent. Syst. ii. p. 340.

*Hab.* Vera Cruz; Oajaca (Mexico); I. Guadeloupe.

41. *Centris pæcila*.

*Centris pæcila*, St.-Farg. Hym. ii. p. 154, ♀.

*Hab.* Havanna.

42. *Centris hæmorrhoidalis*.

*Centris hæmorrhoidalis*, Fabr. Syst. Piez. p. 359, ♂; St.-Farg. Hym. ii. p. 155, ♀.

*Hab.* St. Domingo; Jamaica.

43. *Centris americanorum*.

*Centris americanorum*, St.-Farg. Hym. ii. p. 156, ♂.

*Hab.* Cayenne.

44. *Centris clypeata*.

*Centris clypeata*, St.-Farg. Hym. ii. p. 157, ♂.

*Hab.* Cayenne.

45. *Centris lineolata*.

*Centris lineolata*, St.-Farg. Hym. ii. p. 158, ♀.

*Hab.* Cayenne.

46. *Centris scapulata*.

*Centris scapulata*, St.-Farg. Hym. ii. p. 159, ♀.

*Hab.* Cayenne; Columbia.

47. *Centris decolorata*.

*Centris decolorata*, St.-Farg. Hym. ii. p. 160, ♂.

*Note.*—The type has only an interrupted line at the base of the second segment and a spot at the base of the third and fourth on each side.

*Hab.* Brazil; Mexico; St. Domingo.



48. *Centris maculata*.*Centris maculata*, St.-Farg. Hym. ii. p. 160, ♀.*Hab.* — ?49. *Centris punctata*.*Centris punctata*, St.-Farg. Hym. ii. p. 160, ♀.This species is allied to *C. lanipes*.*Hab.* Catagallo; St. Paulo (Brazil).50. *Centris dorsata*.*Centris dorsata*, St.-Farg. Hym. ii. p. 161, ♀.*Hab.* — ?51. *Centris chrysitis*.*Centris chrysitis*, St.-Farg. Hym. ii. p. 162, ♀.*Hab.* St. Paulo.52. *Centris collaris*.*Centris collaris*, St.-Farg. Hym. ii. p. 162, ♀.*Hab.* St. Paulo.53. *Centris bicolor*.*Centris bicolor*, St.-Farg. Hym. ii. p. 163, ♀.*Hab.* Goyanna (Brazil).54. *Centris aenea*.*Centris aenea*, St.-Farg. Hym. ii. p. 163, ♀.*Hab.* Brazil.55. *Centris lanipes*.*Centris lanipes*, Fabr. Syst. Picz. p. 360, ♀; St.-Farg. Hym. ii. p. 165, ♀.*Apis lanipes*, Fabr. Ent. Syst. ii. p. 340.*Hab.* Brazil; Cayenne.56. *Centris testacea*.*Centris testacea*, St.-Farg. Hym. ii. p. 165, ♀.*Hab.* St. Domingo.57. *Centris picea*.*Centris picea*, St.-Farg. Hym. ii. p. 166, ♀.*Hab.* South America.58. *Centris nigrescens*.*Centris nigrescens*, St.-Farg. Hym. ii. p. 166, ♂.*Hab.* Cayenne.

59. *Centris trigonoides*.*Centris trigonoides*, St.-Farg. Hym. ii. p. 167, ♂.*Hab.* Brazil.60. *Centris fuscata*.*Centris fuscata*, St.-Farg. Hym. ii. p. 167, ♂.*Hab.* South America.61. *Centris vittata*.*Centris vittata*, St.-Farg. Hym. ii. p. 168, ♂ ♀.*Hab.* Brazil.62. *Centris bimaculata*.*Centris bimaculata*, St.-Farg. Hym. ii. p. 168, ♀.*Hab.* St. Paulo.63. *Centris punctata*.*Centris punctata*, St.-Farg. Hym. ii. p. 169, ♀.*Hab.* South Brazil.64. *Centris dentipes*.

*Male.* Length 5 lines. Head and thorax black, the abdomen ferruginous; the labrum, mandibles, and clypeus pale yellow, the latter black at the extreme base; tips of the mandibles rufo-piceous; the flagellum of the antennæ testaceous beneath, except the two apical joints, which are black; a tuft of pale pubescence above the clypeus, that on the vertex fuscous, and that on the cheeks white. Thorax: above the pubescence is fulvous, palest on the metathorax; beneath it is pale, inclining to white; legs ferruginous; the anterior and intermediate pairs fringed with whitish pubescence; on the posterior legs it is fuscous, except that on the femora and tibiæ above, which is pale fulvous; the posterior femora are incrassate, the coxæ with an acute spine at their apex; the wings hyaline and faintly clouded towards their apex. Abdomen with pale fulvous pubescence at its apex; the basal segment of the abdomen sometimes fusco-ferruginous.

*Hab.* Ega; Santarem; Tapajos; Para (Brazil); W. Indies, Mexico.

Specimens from Ega have the legs nearly black and the apical margins of the segments more or less fuscous. This species may possibly be that described by St.-Fargeau as *Centris trigonoides*; but he makes no mention of the spine on the coxæ. The species is allied to *C. lanipes*.

\*65. *Centris ardens*.

*Female*. Length 7 lines. Head and thorax black, legs and abdomen ferruginous; the clypeus, labrum, mandibles, and scape of the antennæ in front pale yellow; a narrow fascia on the anterior margin of the clypeus, and two large subquadrate spots at its base, black; the mandibles ferruginous at their apex; the face covered with short pale downy pubescence, that on the vertex fuscous; the cheeks have a white pubescence. Thorax clothed above with dull ferruginous pubescence; on the sides and beneath it is pale and glittering; the legs with fulvo-ferruginous pubescence; wings subhyaline. Abdomen: a little pale fulvous pubescence at the base; the apical margin of the fifth segment and the sides of the sixth with bright fulvous pubescence; the first segment, and the apical margins of the second and third, with a band that is widest in the middle, abruptly narrowed toward the lateral margins, to which it does not extend, black; a wavy black line in the middle of the fourth segment, and sometimes an indistinct one on the fifth, the two latter frequently wanting.

*Hab.* Ega (Brazil).

\*66. *Centris apicalis*.

*Female*. Length  $7\frac{1}{2}$  lines. Head and thorax black; the three basal segments of the abdomen blue- or green-black; the three apical ones, the abdomen beneath, and the legs ferruginous; the apical segments, in some examples, more or less yellow; the scape of the antennæ in front; the clypeus, labrum, and mandibles yellow; the anterior margin of the clypeus narrowly black or nigro-piceous, the dark margin angulated in the middle, also a large black spot on each side at its base; the pubescence on the cheeks and face whitish, and fulvous on the vertex. Thorax clothed above with fulvo-ochraceous pubescence, paler on the sides and beneath; the pubescence on the legs fulvous; the wings hyaline. On the third segment of the abdomen there is usually a narrow abbreviated yellow line. The male differs only in having the clypeus entirely yellow, and in sometimes having a yellow line also on the second segment.

*Hab.* Saint Bartholomew.

\*67. *Centris insularis*.

*Female*. Length 7 lines. Black; the abdomen nigro-æneous above, with the apical margins of the fourth and the following segments ferruginous. Head: the mandibles, labrum, clypeus, and scape of the antennæ in front yellow; a large ovate black

spot on each side of the clypeus at its base; its anterior margin narrowly rufo-piceous, the middle of the margin with an angulated black shape; the inner orbits of the eyes, as high as the insertion of the antennæ, yellow. The thorax clothed above with short yellowish-grey pubescence, pale yellow at the sides and whitish beneath; the legs ferruginous; the pubescence on the posterior tibiæ and basal joint of the tarsi pale fulvous; the inner side of the tarsal joint clothed with blackish pubescence; wings subhyaline, the nervures fusco-ferruginous. Abdomen: the basal segment with short pale yellowish pubescence; the apical margins of the two following segments rufo-piceous; beneath ferruginous; two lunate black spots at the base of the third and fourth segments; the second and two following segments have their apical margins fringed with pale pubescence.

*Hab.* San Domingo.

\*68. *Centris apiformis*.

Length 7 lines. Head and thorax black, abdomen nigro-æneous. Head: labrum, clypeus, mandibles, and scape of the antennæ in front yellow; the clypeus with a broad black line on each side, and the mandibles with their inferior margins rufo-piceous; the flagellum, except the two basal joints, rufo-testaceous beneath; the cheeks with white pubescence, a tuft of the same between the antennæ, and another on the vertex, both usually more or less tinged with fulvous. Thorax clothed above with fulvous pubescence; on the sides, meta-thorax posteriorly, and beneath it is very pale fulvous; the legs rufo-piceous, the femora darkest; the anterior and intermediate tibiæ with a paler line outside; the base of the posterior pair also pale yellow; all the tibiæ and tarsi fringed behind with pale fulvous pubescence; wings subhyaline, Abdomen: a transverse nigro-æneous fascia on the second and third segments, and the basal margin of the fourth of the same colour; the apical segment rufo-testaceous, as well as the apical margins of the third and fourth segments, which are also thickly fringed with fulvous pubescence.

*Hab.* Santarem (Brazil).

\*69. *Centris nitida*.

*Female.* Length  $6\frac{1}{2}$  lines. Black; the abdomen very smooth and shining; the thorax clothed above with pale yellow pubescence. Head: the mandibles and labrum yellow; an interrupted arched transverse band on the clypeus, and a line at the inner orbits of the eyes, which does not extend above the insertion of the antennæ, yellow; the flagellum of the antennæ

beneath, except the two basal joints, rufo-testaceous; the cheeks with white pubescence. Thorax: the pubescence at the sides and beneath very pale yellow; the anterior legs have a pale fringe on the femora and tibiæ behind, and the tarsi have a fulvous pubescence; the pubescence on the other legs is black; the wings subhyaline, their tegulæ white. Abdomen; the apical segment with fusco-ferruginous pubescence.

*Hab.* Honduras.

\*70. *Centris nigro-cerulea*.

*Female.* Length 7 lines. Obscure blue-black; the entire pubescence black; the claw-joint of the tarsi fusco-ferruginous; the mandibles reddish yellow at their apex, with the tips of the teeth black; the wings fusco-hyaline, darkest at their base.

*Male.* Resembles the female, but has the labrum and clypeus white.

*Hab.* Mexico.

This species closely resembles the *Hemesia nigerrima* of Spinola from Chili, from which it differs in having the apex of the mandibles pale; its wings are darker, and its abdomen is more obscurely blue. The male of the Chilean species has the labrum and clypeus white: the clypeus is semicircular; in *C. nigro-cerulea* it is semiovate.

71. *Centris laticincta*.

*Hemesia laticincta*, Spin. Ann. Soc. Ent. Fr. x. p. 148, ♀ (1841).

*Hab.* Cayenne.

72. *Centris pyropyga*.

*Hemesia pyropyga*, Spin. Ann. Soc. Ent. Fr. x. p. 148 (1841).

*Hab.* Cayenne.

73. *Centris cineraria*.

*Centris cineraria*, Smith, Cat. Hym. Ins. *Apidæ*, ii. p. 378, ♀.

*Hab.* Chili.

74. *Centris chiliensis*.

*Hemesia chiliensis*, Spin. Faun. Chile, vi. p. 167, ♀.

*Hab.* Chili.

75. *Centris nigerrima*.

*Hemesia nigerrima*, Spin. Faun. Chile, vi. p. 167, ♀.

*Hab.* Chili.

\*76. *Centris thoracica*.

*Female*. Length 7 lines. Black; the thorax above clothed with bright rich fulvous pubescence; that on the head, legs, thorax beneath, and on the abdomen black; the legs obscure nigro-piceous; the flagellum of the antennæ, except the two basal joints, testaceous.

*Hab.* San Domingo.

\*77. *Centris concinna*.

*Female*. Length 7 lines. Head and thorax black; the legs and abdomen ferruginous, the latter black at the base above. The clypeus, face on each side of it, the labrum, mandibles, and scape in front yellow; a large subovate black spot at the base of the clypeus that terminates in a point in front, and which has a narrow yellow line down the centre; the pubescence on the cheeks white, that on the face and vertex fulvous. Thorax clothed with fulvous pubescence above, on the sides and beneath it is paler, on the legs it is fulvo-ferruginous; wings subhyaline; the tegulæ pale testaceous. Abdomen: the basal segment with pale fulvous pubescence; on the apical margin of the second and following segments it is fulvous.

*Male*. Smaller than the female, in all respects closely resembling it; the clypeus has a black line at its lateral margins; the abdomen has the second and third segments more or less ferruginous laterally.

*Hab.* Tapajos (Brazil).

\*78. *Centris simillima*.

*Female*. Length 5 lines. Head and thorax black; legs and abdomen ferruginous. Head: the labrum, mandibles, clypeus, and face on each side of it yellow; the basal margin of the clypeus narrowly black, also an angulated black spot at its anterior margin. Thorax clothed above with pale fulvous, and beneath with whitish pubescence; on the tarsi, intermediate and posterior tibiæ the pubescence is fulvous; wings subhyaline; the tegulæ white.

*Hab.* San Domingo.

This species resembles *C. lanipes*; but the marking of the clypeus alone will distinguish it.

\*79. *Centris perforator*.

*Female*. Length 6 lines. Head and thorax black, legs and



abdomen ferruginous. Head: the clypeus, labrum, mandibles, face on each side of the clypeus, and the scape in front yellow; two semicircular black spots on the clypeus; the flagellum of the antennæ, except the two basal joints, obscurely ferruginous beneath. Thorax clothed above with ochraceous pubescence, on the sides and beneath it is paler; the pubescence on the legs is pale fulvous; the posterior femora have a small tooth near their base beneath; wings subhyaline, their nervures fuscous. Abdomen: the basal segment with pale ochraceous pubescence, the three apical segments fringed at the sides with fulvous pubescence.

*Hab.* Pernambuco.

\*80. *Centris terminata*.

*Male.* Length  $5\frac{1}{2}$  lines. Black, with the terminal joints of the tarsi rufo-piceous. Head: the clypeus, labrum, and mandibles pale yellow, the latter have sometimes only a yellow spot at the base; the flagellum of the antennæ, except the two basal and two apical joints, rufo-testaceous beneath; the pubescence on the cheeks and a tuft between the antennæ white; that on the vertex is dark fuscous. Thorax clothed above with fulvous pubescence; at the sides and also beneath it is griseous; the anterior and intermediate legs fringed behind with pale pubescence, that on the posterior pair is black, sometimes mixed with brown or obscure fulvous; wings subhyaline, the nervures brown. Abdomen with fulvous pubescence at the base and white at the apex; beneath thickly clothed with griseous pubescence, occasionally mixed with fulvons at the apex.

*Hab.* Para; Santarem; Catagallo (Brazil).

This is a variable insect in the coloration of its pubescence. Specimens from Catagallo have bright fulvous pubescence on the thorax; those from Para have it pale fulvous; the legs are black in the specimens from Catagallo, whilst in those from Para and Santarem they are usually more or less rufo-piceous.

\*81. *Centris tarsata*.

*Male.* Length  $4\frac{1}{2}$  lines. Head and thorax black, legs and abdomen ferruginous. Head: the clypeus, labrum, and mandibles yellowish white, the tips of the latter ferruginous; the pubescence on the cheeks white, on the face and vertex it is yellowish, the latter has a mixture of fuscous; the flagellum of the antennæ, except the two apical and two basal joints, rufo-testaceous. Thorax clothed above with yellow pubescence, on the sides, beneath, and on the legs it is paler; the posterior



tarsi fringed with black pubescence; wings subhyaline, the nervures dark fuscous. Abdomen: the basal segment with yellow pubescence, the fringe on the apical segments whitish.

*Hab.* Santarem (Brazil).

### 82. *Centris elegans*.

*Female.* Length  $8\frac{1}{2}$  lines. Head, thorax, and legs black; the abdomen dark blue. Head: a longitudinal line on the clypeus and on each side of the anterior margin a transverse, oblong, pear-shaped spot, pointed within and almost uniting with the longitudinal line, a line at the inner margin of the eyes not extending above the base of the clypeus, two ovate spots on the labrum, and a spot at the base of the mandibles white, the tips of the latter also white; the pubescence on the head, thorax, and legs black; wings fuscous, palest at their apical margins. The abdomen obscurely testaceous beneath, its apical segments fringed with black pubescence.

*Hab.* Island of St. Vincent.

### 83. *Centris crassipes*.

*Male.* Length  $5\frac{1}{2}$  lines. Black; the clypeus, labrum, and mandibles white. The pubescence on the cheeks, a tuft at the base of the antennæ, and the fringe on the anterior femora behind white; the thorax clothed with mouse-coloured pubescence, behind the scutellum and at the base of the abdomen it is paler; the wings hyaline; the posterior femora and tibiæ incrassate; the pubescence on the posterior legs black. Abdomen shining black, with a blue tinge.

*Hab.* Jamaica.

### 84. *Centris picta*.

*Female.* Length 7 lines. Black, variegated with yellow spots and fasciæ. Head: the labrum, sides of the face as high as the insertion of the antennæ, a spot at each lateral anterior angle of the clypeus, and a minute spot at the base of each mandible yellow; the cheeks have a thin griseous pubescence, that on the vertex is fuscous. Thorax: a spot on each side of the collar, two on the tegulæ, and also two ovate ones on the scutellum yellow; the pubescence on the sides and beneath the thorax fuscous; the anterior and intermediate legs with black pubescence, except that on the tarsi beneath, which is ferruginous, the claw-joint being also ferruginous; the posterior legs more or less obscure ferruginous; the tibiæ and basal joint of the tarsi with long, dense, fulvous pubescence, the tarsal joint very broadly expanded, its pubescence on the inner side ferruginous. Abdomen: the

second, third, and fourth segments have at their basal margins a bright yellow fascia, the second being narrowest; the apical segments yellow; the fascia on the second segment expands laterally into an irregular ovate spot; beneath rufo-testaceous.

*Hab.* South Brazil.

This species is in the possession of Dr. Hermann Müller, of Lippstadt.

85. *Centris lanosa.*

*Centris lanosa.* Cresson, Hym. Texana, p. 284, ♂.

*Hab.* Texas.

[To be continued.]

---

L.—*Notes on the Small Spotted Eagle of Northern Germany, Aquila maculata (Gm.).* By H. E. DRESSER, F.Z.S.

FOR some time I have been carefully working at the most difficult group amongst the eagles, that comprising those usually known by the name of "Spotted" Eagles, and have by no means yet been able to elucidate matters to my satisfaction. A day or two ago, however, my friend and late colleague, Mr. R. B. Sharpe, showed me the proof-sheets of a portion of his Museum catalogue, now in the process of publication; and I observed that he therein uses the name of *Aquila navia* for the small Pomeranian and North-German Spotted Eagle. Although this species, in common with the larger Spotted Eagle which is found in Europe and Asia, has so long borne this name, I convinced myself, some months ago, that it certainly does not belong to it, though I am by no means sure to which species Gmelin's name of *navia* should apply. I have, however, never published any information I have acquired on this subject; but as Mr. Sharpe, to whom I communicated some portion of it, wishes to refer to my notes in his catalogue, I have arranged with him to publish a short notice, giving the reasons why I refuse to accept the title of *Aquila navia* for the smaller Spotted Eagle. They are as follows:—J. F. Gmelin, who first referred to an eagle under the name of *Falco navius* (Syst. Nat. i. p. 258. no. 49), which has generally been looked on as being the Small Spotted Eagle, bases his description on that of Brisson's *Aigle tucheté* (Orn. i. p. 425. no. 4, 1760). Brisson, however, does not describe the bird from a specimen in his own possession, but refers to other authors, some of whose works (as, for instance, the one first mentioned, that of Schwenckfeld) are not to be had for reference. He refers,